

REMARKS

This application has been reviewed in light of the Office Action dated April 9, 2003 (Paper No. 9). Claims 1 to 3 and 5 to 7, are in the application, of which Claim 1 is the only independent claim. Reconsideration and further examination are respectfully requested.

The abstract of the disclosure was objected to for an informality which has been addressed by the foregoing amendment to the abstract. Accordingly, reconsideration and withdrawal of the objection to the abstract are respectfully requested.

Claims 1 to 3 and 5 to 7 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 6,080,927 (Johnson), and also under § 103(a) over Johnson in view of U.S. Patent No. 6,147,295 (Mimura) or U.S. Patent No. 4,555,586 (Guha). Reconsideration and withdrawal of the rejections are respectfully requested.

The present invention relates generally to a solar power generating system with a cooling mechanism. By virtue of having a cooling mechanism, the temperature at which the power generation system operates may be regulated. Ideally, the temperature is regulated to provide improved operating conditions for the power generation system.

The present invention includes the features of a memory means for storing previously determined standard temperature values for an atmosphere where the solar cell is installed for every one of predetermined time points of the year and an operation means that operates the cooling means in accordance with a selected one of the previously determined standard temperature values stored in the memory means for the atmosphere where the solar cell is installed for a current time point. Due to these features, the present invention allows for solar cell operation that is more tailored to local temperatures. The features also allow for more precise control of the cooling mechanism.

According to Claim 1, the present invention concerns a solar power generation system comprising at least a solar cell and a cooling mechanism. The cooling mechanism has a cooling means for cooling the solar cell, a memory means for memorizing an optimum cooling and driving state of the cooling means with respect to an output of the solar cell, and an operation means for operating an optimum cooling and driving state of the cooling means with respect to an output of the solar cell. The memory means comprises previously determined standard temperature values for an atmosphere where the solar cell is installed for every one of predetermined time points of the year. As part of the cooling mechanism, the operation means comprises a clocking function and operates the cooling means in accordance with a selected one of the standard temperature values from the memory means for a current time point at the installation location of the solar cell.

The applied art, taken either alone or in combination, is not seen to teach or suggest the features of the memory means and the operation means described above.

Johnson is merely seen to disclose a solar concentrator for producing usable power as heat or electricity which uses a self-steering heliostat to concentrate solar radiation onto an absorbing surface (Johnson, abstract and column 2, lines 20 to 28). Johnson's device is seen to include a fluid heat transfer means that is controlled by a microprocessor (Johnson, column 12, line 44 to column 13, line 32).

As noted in the previous Office Action dated August 28, 2002, Johnson is seen to control cooling based on the current temperature of the solar cells at the instant time. Since Johnson controls cooling based on current temperature, there is no need for a memory means for storing previously determined standard temperature values for an atmosphere where the solar cell is installed for every one of predetermined time points of

the year. Likewise, since Johnson controls cooling based on current temperature, he is not seen to operate cooling in accordance with a selected one of said standard temperature values from said memory means for a current time point at said installation location of the solar cell. Therefore, Johnson is not seen to teach or suggest at least the structural features of the memory means and the operation means of the present invention.

In the Response to Arguments, the pending Office Action appears to discount the functional language which defines the controller of the present invention and dismisses the language as a recitation of intended use. However, the functional language recited in the claims is not a recitation of intended uses. Functional language defines an element by what it does rather than what it is. See In re Swinehart, 169 USPQ 226 (CCPA 1971), cited at MPEP § 2173.05(g). Accordingly, such functional language should be given full weight in claim analysis.

In giving the functional language full weight, it becomes evident that Johnson's microprocessor and the operation means of the present invention are not structural equivalents. Johnson's microprocessor is not structured to perform the functions of the operation means of the present invention. As set forth in MPEP § 2143, to establish a prima facie case of obviousness, the prior art must teach or suggest all of the claimed elements.

Whether or not Johnson's device is "capable of performing" functions recited in the claims is irrelevant if the reference does not describe or suggest its structure. See In re Mills, 16 USPQ2d 1430 (Fed. Cir. 1990), and MPEP § 2143.01. Accordingly, even if Johnson's microprocessor is capable of being modified to perform the functions of the controller of the present invention, there is not seen to be any suggestion in the art to do so. The fact that the prior art could be modified does not make the modification obvious

absent some suggestion of the desirability of the modification in the prior art. See In re Gordon, 221 USPQ 1125 (Fed. Cir. 1984), cited at MPEP § 2143.01.

As noted above, Johnson's device operates based on the current temperature. As such, there is no motivation to modify Johnson's device to have the memory means or the operation means of the present invention. Moreover, even if modified, the resulting structure would still fail to describe the memory means defined in Claim 1.

Neither Guha nor Mimura are seen to compensate for the foregoing deficiencies of Johnson. Guha is seen to disclose a photovoltaic device in which light induced defects may be removed by annealing the affected surface at relatively low temperature (Guha, abstract and column 8, line 56 to column 9, line 42). Guha is not seen to teach a cooling means that is driven in accordance with previously determined standard temperature values, and therefore is not seen to disclose the memory means and operation means of Claim 1.

Mimura is seen to teach a sunlight energy conversion device that contains a photoelectric transducer and means for supplying heat to the photoelectric transducer through a flowing heating medium (Mimura, abstract and column 2, lines 6 to 35). Mimura is also not seen to teach or suggest a cooling means driven in accordance with previously determined standard temperature values, and is also not seen to disclose the memory means and operation means of Claim 1.

Since the applied art is not seen to disclose the features of the memory means and the operation means described above, the prior art would not be seen to yield the advantages of solar cell operation that is more tailored to local temperatures and more precise control of the cooling mechanism, as in the present invention.


In view of the foregoing, amended independent Claim 1 is believed to be in allowable condition.

The remaining claims in this application are each dependent from the independent claims discussed above and are therefore believed patentable for the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, and no other matters being raised in the Office Action, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,


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